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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,791	10/06/2000	Sanjay Khanna	RSW9-2000-0050-US1	2904

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EXAMINER

EL CHANTI, HUSSEIN A

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/680,791

Applicant(s)

KHANNA, SANJAY

Examiner

Hussein A El-chanti

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to application filed on Oct. 6, 2000. Claims 1-19 are pending examination.

Specification

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 7, 13 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Moles et al., U.S. Patent No. 6,466,779 (referred to hereafter as Moles).

As to claims 1, 7 and 13, Moles teaches a computer program product, method and system for providing fast and efficient address lookup for an address comprised of a plurality of address components and wherein each address component is deemed to be more significant than its next-sequential neighboring address component, the computer program product embodied on one or more computer-readable media and comprising:

computer-readable program code means for creating a plurality of arrays comprising an array for each of the address components, wherein each array comprises a plurality of entries which are indexed using values of the address component for which the array was created (see col. 4 lines 9-14 and col. 9 lines 49-64), further comprising:

computer-readable program code means for obtaining a particular address value to be represented in the plurality of arrays (see col. 4 lines 15-19);

computer-readable program code means for obtaining a bit mask associated with the particular address value (see col. 4 lines 17-26);

computer-readable program code means indexing into highest-order one of the arrays using a most-significant component of the particular address value as an index element (see col. 4 lines 17-26 and lines 57-col. 5 lines 5);

computer-readable program code means for setting a flag associated with the index element to on if the bit mask indicates that the next-sequential neighboring address component is considered significant and for setting the flag to off otherwise (see col. 4 lines 57-col. 5 lines 5); and

computer-readable program code means for repeating the indexing and setting while the bit mask indicates that the next-sequential neighboring address component is considered significant and for (1) storing information associated with the particular address value in a storage or a memory location and (2) setting a pointer field associated with the index element to point to the storage or memory location (see col. 4 lines 32-45), otherwise; and

computer-readable program code means for retrieving the stored information associated with a selected address value from the plurality of arrays, further comprising:

computer-readable program code means for obtaining the selected address value (see col. 4 lines 32-45);

computer-readable program code means for obtaining a selected bit mask associated with the selected address value (see col. 4 lines 32-45);

computer-readable program code means for indexing into the highest-order one of the arrays using the most-significant component of the selected address value as the index element (see col. 4 lines 17-26 and lines 57-col. 5 lines 5); and

computer-readable program code means for determining that no result is available if the index element has no stored information, and for continuing otherwise, wherein the continuing further comprises:

computer-readable program code means for checking the flag associated with the index element (see col. 4 lines 57-col. 5 lines 5); and

computer-readable program code means for returning the stored information from the storage or memory location pointed to by the pointer field when the flag is set off or for repeating the indexing and determining when the flag is set on (see col. 4 lines 57-col. 5 lines 5).

As to claim 2, Moles teaches the computer program product according to Claim 1, wherein the computer-readable program code means for repeating further comprises computer-readable program code means for setting a use count associated with the storage or memory location to a number which represents a count of the array entries

which point to this storage or memory location when the next sequential neighboring address component is not considered significant (see col. 9 lines 49-65).

As to claim 3, Moles teaches the computer program product according to claim 2, wherein the stored information in the memory or storage location comprises an associated bit mask and wherein the computer readable program code means for retrieving further comprises computer-readable program code means for resolving a collision, further comprising:

computer-readable program code means for comparing the selected address value to each bit mask associated with the stored information from multiple storage or memory locations, yielding a plurality of bit mask results (see col. 4 lines 57-col. 5 lines 5).; and

computer-readable program code means for selecting a collision result using that one of the bit mask results which both (1) matches the selected address value according to the selected bit mask and (2) has the longest associated bit mask (see col. 4 lines 57-col. 5 lines 5).

As to claim 4, Moles teaches the computer program product according to Claim 1, wherein the address is an Internet Protocol (IP) address (see col. 4 lines 1-1).

As to claim 19, a method for providing fast and efficient address lookup for an address comprised of a plurality of address components, the method comprising the steps of

creating a plurality of arrays comprising an array for each of the address components, wherein each array comprises a plurality of entries which are indexed

using values of the address component for which the array was created (see col. 4 lines 9-14 and col. 9 lines 49-64);

storing entries and information for each address to be subsequently looked up, further comprising the steps of

creating an entry for a particular address using the plurality of arrays (see col. 4 lines 9-14 and col. 9 lines 49-64); and

storing information associated with the particular address value in a storage or memory location associated with a last significant component of the entry, wherein the last significant component is determined by a bit mask associated with the particular address (see col. 4 lines 17-26 and lines 57-col. 5 lines 5); and

retrieving the stored information associated with a selected address value from the plurality of arrays (see col. 4 lines 17-26 and lines 57-col. 5 lines 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moles in view of Mahler et al., U.S. Patent No. 6,381,638 (referred to hereafter as Mahler).

As to claim 5, Moles teaches the computer program product according to Claim 1, wherein the address is an Internet Protocol (IP) address (see the rejection of claim 4).

Moles does not explicitly teach the claimed limitation "4 components in each IP version address". However Mahler teaches a mapping addresses to servers and hosts where the address can be a IPv4 address (see col. 1 lines 10-28).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Moles by incorporating the step of using IPv4 addresses because doing so would allow the system to map clients to hosts more easily and therefore in less time when working in a relatively small network.

As to claim 6, Mahler teaches the IP address is an IP version address and wherein there are 16 address components in each IP version address and thus arrays (see col. 1 lines 10-28).

5. Claims 8-12 and 14-18 do not teach or define any additional limitations over claims 1-7 and 13 and therefore are rejected for similar reasons.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Method And System For Improving Traffic Operation In An Internet Enviroment by Thubert et al., U.S. Patent No. 6,603,769.
- High Availability Computer System And Method For Switching Server Having An Imaginary Address by Watanabe, U.S. Patent No. 6,647,427.
- Router Uses A Single Hierarchy Independent Routing Table That Includes A Flag To Look-Up A Series Of Next Hop Routers For Routing Packets by Basso et al., U.S. Patent No. 6,658,481.
- Integrated IP Network by Furukawa et al., U.S. Patent No. 6,711,623.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein A El-chanti whose telephone number is (703)305-4652. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703)308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein El-chanti

April 2, 2004


ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100